SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: Feng, Lili
Chen, Sizhong
Xia, Yiyang

(ii) TITLE OF INVENTION: DIAGNOSTIC AND THERAPEUTIC METHODS RELATED TO REGULATING ENERGY MOBILIZATION WITH OB PROTEIN AND OB ANTIBODIES

(iii) NUMBER OF SEQUENCES: 11

(iv) CORRESPONDENCE ADDRESS:
(A) ADDRESSEE: Olson & Hierl, Ltd.
(B) STREET: 20 North Wacker Drive, 36th Floor
(C) CITY: Chicago
(D) STATE: IL
(E) COUNTRY: US
(F) ZIP: 60606

(v) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30

(vi) CURRENT APPLICATION DATA:
(A) APPLICATION NUMBER:
(B) FILING DATE: 04-JUN-1997
(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: US 60/018,972
(B) FILING DATE: 04-JUN-1996

(viii) ATTORNEY/AGENT INFORMATION:
(A) NAME: Olson, Arne M
(B) REGISTRATION NUMBER: 30,203
(C) REFERENCE/DOCKET NUMBER: TSRI540.1PCT

(ix) TELECOMMUNICATION INFORMATION:
(A) TELEPHONE: 312-580-1180
(B) TELEFAX: 312-580-1189

(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 2793 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GGATCCCTGC TCCAGCAGCT GCAAGGTGCA AGAAGAAGAA GATCCCAGGG AGGAAAATGT 60

GCTGGAGACC CCTGTGTCGG TTCCTGTGGC TTTGGTCCTA TCTGTCTTAT GTTCAAGCAG 120

TGCCTATCCA GAAAGTCCAG GATGACACCA AAACCCTCAT CAAGACCATT GTCACCAGGA 180

TCAATGACAT TTCACACACG CAGTCGGTAT CCGCCAAGCA GAGGGTCACT GGCTTGGACT 240

TCATTCCTGG GCTTCACCCC ATTCTGAGTT TGTCCAAGAT GGACCAGACT CTGGCAGTCT 300

ATCAACAGGT CCTCACCAGC CTGCCTTCCC AAAATGTGCT GCAGATAGCC AATGACCTGG 360

AGAATCTCCG AGACCTCCTC CATCTGCTGG CCTTCTCCAA GAGCTGCTCC CTGCCTCAGA 420

CCAGTGGCCT GCAGAAGCCA GAGAGCCTGG ATGGCGTCCT GGAAGCCTCA CTCTACTCCA 480

CAGAGGTGGT GGCTTTGAGC AGGCTGCAGG GCTCTCTGCA GGACATTCTT CAACAGTTGG 540

ATGTTAGCCC TGAATGCTGA AGTTTCAAAG GCCACCAGGC TCCCAAGAAT CATGTAGAGG 600

GAAGAAACCT TGGCTTCCAG GGGTCTTCAG GAGAAGAGAG CCATGTGCAC ACATCCATCA 660

TTCATTTCTC TCCCTCCTGT AGACCACCCA TCCAAAGGCA TGACTCCACA ATGCTTGACT 720

CAAGTTATCC ACACAACTTC ATGAGCACAA GGAGGGGCCA GCCTGCAGAG GGGACTCTCA 780

CCTAGTTCTT CAGCAAGTAG AGATAAGAGC CATCCCATCC CCTCCATGTC CCACCTGCTC 840

CGGGTACATG TTCCTCCGTG GGTACACGCT TCGCTGCGGC CCAGGAGAGG TGAGGTAGGG 900

ATGGGTAGAG CCTTTGGGCT GTCTCAGAGT CTTTGGGAGC ACCGTGAAGG CTGCATCCAC 960

ACACAGCTGG AAACTCCCAA GCAGCACACG ATGGAAGCAC TTATTTATTT ATTCTGCATT 1020

CTATTTTGGA TGGATCTGAA GCAAGGCATC AGCTTTTTCA GGCTTTGGGG GTCAGCCAGG 1080

ATGAGGAAGG CTCCTGGGGT GCTGCTTTCA ATCCTATTGA TGGGTCTGCC CGAGGCAAAC 1140

CTAATTTTTG AGTGACTGGA AGGAAGGTTG GGATCTTCCA AACAAGAGTC TATGCAGGTA 1200

GCGCTCAAGA TTGACCTCTG GTGACTGGTT TTGTTTCTAT TGTGACTGAC TCTATCCAAA 1260

CACGTTTGCA GCGGCATTGC CGGGAGCATA GGCTAGGTTA TTATCAAAAG CAGATGAATT 1320

TTGTCAAGTG TAATATGTAT CTATGTGCAC CTGAGGGTAG AGGATGTGTT AGAGGGAGGG 1380

TGAAGGATCC GGAAGTGTTC TCTGAATTAC ATATGTGTGG TAGGCTTTTC TGAAAGGGTG 1440

AGGCATTTTC TTACCTCTGT GGCCACATAG TGTGGCTTTG TGAAAAGGAC AAAGGAGTTG 1500

ACTCTTTCCG GAACATTTGG AGTGTACCAG GCACCCTTGG AGGGGCTAAA GCTACAGGCC 1560

TTTTGTTGGC ATATTGCTGA GCTCAGGGAG TGAGGGCCCC ACATTTGAGA CAGTGAGCCC 1620

CAAGAAAAGG GTCCCTGGTG TAGATCTCCA AGGTTGTCCA GGGTTGATCT CACAATGCGT 1680

TTCTTAAGCA GGTAGACGTT TGCATGCCAA TATGTGGTTC TCATCTGATT GGTTCATCCA 1740

AAGTAGAACC CTGTCTCCCA CCCATTCTGT GGGGAGTTTT GTTCCAGTGG GAATGAGAAA 1800

TCACTTAGCA GATGGTCCTG AGCCCTGGGC CAGCACTGCT GAGGAAGTGC CAGGGCCCCA 1860

GGCCAGGCTG CCAGAATTGC CCTTCGGGCT GGAGGATGAA CAAAGGGGCT TGGGTTTTTC 1920

CATCACCCCT GCACCCTATG TCACCATCAA ACTGGGGGGC AGATCAGTGA GAGGACACTT 1980

GATGGAAAGC AATACACTTT AAGACTGAGC ACAGTTTCGT GCTCAGCTCT GTCTGGTGCT 2040

GTGAGCTAGA GAAGCTCACC ACATACATAT AAAAATCAGA GGCTCATGTC CCTGTGGTTA 2100

GACCCTACTC GCGGCGGTGT ACTCCACCAC AGCAGCACCG CACCGCTGGA AGTACAGTGC 2160

TGTCTTCAAC AGGTGTGAAA GAACCTGAGC TGAGGGTGAC AGTGCCCAGG GGAACCCTGC 2220

TTGCAGTCTA TTGCATTTAC ATACCGCATT TCAGGGCACA TTAGCATCCA CTCCTATGGT 2280

AGCACACTGT TGACAATAGG ACAAGGGATA GGGGTTGACT ATCCCTTATC CAAAATGCTT 2340

GGGACTAGAA GAGTTTTGGA TTTTAGAGTC TTTTCAGGCA TAGGTATATT TGAGTATATA 2400

TAAAATGAGA TATCTTGGGG ATGGGGCCCA AGTATAAACA TGAAGTTCAT TTATATTTCA 2460

TAATACCGTA TAGACACTGC TTGAAGTGTA GTTTTATACA GTGTTTTAAA TAACGTTGTA 2520

TGCATGAAAG ACGTTTTTAC AGCATGAACC TGTCTACTCA TGCCAGCACT CAAAAACCTT 2580

GGGGTTTTGG AGCAGTTTGG ATCTTGGGTT TTCTGTTAAG AGATGGTTAG CTTATACCTA 2640

AAACCATAAT GGCAAACAGG CTGCAGGACC AGACTGGATC CTCAGCCCTG AAGTGTGCCC 2700

TTCCAGCCAG GTCATACCCT GTGGAGGTGA GCGGGATCAG GTTTTGTGGT GCTAAGAGAG 2760

GAGTTGGAGG TAGATTTTGG AGGATCTGAG GGC 2793

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 3862 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

GTCGACCCAC GCGTCCGGAG GAATCGTTCT GCAAATCCAG GTGTACACCT CTGAAGAAAG 60

ATGATGTGTC AGAAATTCTA TGTGGTTTTG TTACACTGGG AATTTCTTTA TGTGATAGCT 120

GCACTTAACC TGGCATATCC AATCTCTCCC TGGAAATTTA AGTTGTTTTG TGGACCACCG 180

AACACAACCG ATGACTCCTT TCTCTCACCT GCTGGAGCCC CAAACAATGC CTCGGCTTTG 240

AAGGGGGCTT CTGAAGCAAT TGTTGAAGCT AAATTTAATT CAAGTGGTAT CTACGTTCCT 300

GAGTTATCCA AAACAGTCTT CCACTGTTGC TTTGGGAATG AGCAAGGTCA AAACTGCTCT 360

GCACTCACAG ACAACACTGA AGGGAAGACA CTGGCTTCAG TAGTGAAGGC TTCAGTTTTT 420

CGCCAGCTAG GTGTAAACTG GGACATAGAG TGCTGGATGA AAGGGGACTT GACATTATTC 480

ATCTGTCATA TGGAGCCATT ACCTAAGAAC CCCTTCAAGA ATTATGACTC TAAGGTCCAT 540

CTTTTATATG ATCTGCCTGA AGTCATAGAT GATTCGCCTC TGCCCCCACT GAAAGACAGC 600

TTTCAGACTG TCCAATGCAA CTGCAGTCTT CGGGGATGTG AATGTCATGT GCCGGTACCC 660

AGAGCCAAAC TCAACTACGC TCTTCTGATG TATTTGGAAA TCACATCTGC CGGTGTGAGT 720

TTTCAGTCAC CTCTGATGTC ACTGCAGCCC ATGCTTGTTG TGAAACCCGA TCCACCCTTA 780

GGTTTGCATA TGGAAGTCAC AGATGATGGT AATTTAAAGA TTTCTTGGGA CAGCCAAACA 840

ATGGCACCAT TTCCGCTTCA ATATCAGGTG AAATATTTAG AGAATTCTAC AATTGTAAGA 900

GAGGCTGCTG AAATTGTCTC AGCTACATCT CTGCTGGTAG ACAGTGTGCT TCCTGGATCT 960

TCATATGAGG TCCAGGTGAG GAGCAAGAGA CTGGATGGTT CAGGAGTCTG GAGTGACTGG 1020

AGTTCACCTC AAGTCTTTAC CACACAAGAT GTTGTGTATT TTCCACCCAA AATTCTGACT 1080

AGTGTTGGAT CGAATGCTTC TTTTCATTGC ATCTACAAAA ACGAAAACCA GATTATCTCC 1140

TCAAAACAGA TAGTTTGGTG GAGGAATCTA GCTGAGAAAA TCCCTGAGAT ACAGTACAGC 1200

ATTGTGAGTG ACCGAGTTAG CAAAGTTACC TTCTCCAACC TGAAAGCCAC CAGACCTCGA 1260

GGGAAGTTTA CCTATGACGC AGTGTACTGC TGCAATGAGC AGGCGTGCCA TCACCGCTAT 1320

GCTGAATTAT ACGTGATCGA TGTCAATATC AATATATCAT GTGAAACTGA CGGGTACTTA 1380

ACTAAAATGA CTTGCAGATG GTCACCCAGC ACAATCCAAT CACTAGTGGG AAGCACTGTG 1440

CAGCTGAGGT ATCACAGGCG CAGCCTGTAT TGTCCTGATA GTCCATCTAT TCATCCTACG 1500

TCTGAGCCCA AAAACTGCGT CTTACAGAGA GACGGCTTTT ATGAATGTGT TTTCCAGCCA 1560

ATCTTTCTAT TATCTGGCTA TACAATGTGG ATCAGGATCA ACCATTCTTT AGGTTCACTT 1620

GACTCGCCAC CAACGTGTGT CCTTCCTGAC TCCGTAGTAA AACCACTACC TCCATCTAAC 1680

GTAAAAGCAG AGATTACTGT AAACACTGGA TTATTGAAAG TATCTTGGGA AAAGCCAGTC 1740

TTTCCGGAGA ATAACCTTCA ATTCCAGATT CGATATGGCT TAAGTGGAAA AGAAATACAA 1800

TGGAAGACAC ATGAGGTATT CGATGCAAAG TCAAAGTCTG CCAGCCTGCT GGTGTCAGAC 1860

CTCTGTGCAG TCTATGTGGT CCAGGTTCGC TGCCGGCGGT TGGATGGACT AGGATATTGG 1920

AGTAATTGGA GCAGTCCAGC CTATACGCTT GTCATGGATG TAAAAGTTCC TATGAGAGGG 1980

CCTGAATTTT GGAGAAAAAT GGATGGGGAC GTTACTAAAA AGGAGAGAAA TGTCACCTTG 2040

CTTTGGAAGC CCCTGACGAA AAATGACTCA CTGTGTAGTG TGAGGAGGTA CGTGGTGAAG 2100

CATCGTACTG CCCACAATGG GACGTGGTCA GAAGATGTGG GAAATCGGAC CAATCTCACT 2160

TTCCTGTGGA CAGAACCAGC GCACACTGTT ACAGTTCTGG CTGTCAATTC CCTCGGCGCT 2220

TCCCTTGTGA ATTTTAACCT TACCTTCTCA TGGCCCATGA GTAAAGTGAG TGCTGTGGAG 2280

TCACTCAGTG CTTATCCCCT GAGCAGCAGC TGTGTCATCC TTTCCTGGAC ACTGTCACCT 2340

GATGATTATA GTCTGTTATA TCTGGTTATT GAATGGAAGA TCCTTAATGA AGATGATGGA 2400

ATGAAGTGGC TTAGAATTCC CTCGAATGTT AAAAAGTTTT ATATCCACGA TAATTTTATT 2460

CCCATCGAGA AATATCAGTT TAGTCTTTAC CCAGTATTTA TGGAAGGAGT TGGAAAACCA 2520

AAGATAATTA ATGGTTTCAC CAAAGATGCT ATCGACAAGC AGCAGAATGA CGCAGGGCTG 2580

TATGTCATTG TACCCATAAT TATTTCCTCT TGTGTCCTAC TGCTCGGAAC ACTGTTAATT 2640

TCACACCAGA GAATGAAAAA GTTGTTTTGG GACGATGTTC CAAACCCCAA GAATTGTTCC 2700

TGGGCACAAG GACTGAATTT CCAAAAGCCT GAAACATTTG AGCATCTTTT TACCAAGCAT 2760

GCAGAATCAG TGATATTTGG TCCTCTTCTT CTGGAGCCTG AACCCATTTC AGAAGAAATC 2820

AGTGTCGATA CAGCTTGGAA AAATAAAGAT GAGATGGTCC CAGCAGCTAT GGTCTCCCTT 2880

CTTTTGACCA CACCAGACCC TGAAAGCAGT TCTATTTGTA TTAGTGACCA GTGTAACAGT 2940

GCTAACTTCT CTGGGTCTCA GAGCACCCAG GTAACCTGTG AGGATGAGTG TCAGAGACAA 3000

CCCTCAGTTA AATATGCAAC TCTGGTCAGC AACGATAAAC TAGTGGAAAC TGATGAAGAG 3060

CAAGGGTTTA TCCATAGTCC TGTCAGCAAC TGCATCTCCA GTAATCATTC CCCACTGAGG 3120

CAGTCTTTCT CTAGCAGCTC CTGGGAGACA GAGGCCCAGA CATTTTTCCT TTTATCAGAC 3180

CAGCAACCCA CCATGATTTC ACCACAACTT TCATTCTCGG GGTTGGATGA GCTTTTGGAA 3240

CTGGAGGGAA GTTTTCCTGA AGAAAATCAC AGGGAGAAGT CTGTCTGTTA TCTAGGAGTC 3300

ACCTCCGTCA ACAGAAGAGA GAGTGGTGTG CTTTTGACTG GTGAGGCAGG AATCCTGTGC 3360

ACATTCCCAG CCCAGTGTCT GTTCAGTGAC ATCAGGATCC TCCAGGAGAG ATGCTCACAC 3420

TTTGTAGAAA ATAATTTGAG TTTAGGGACC TCTGGTGAGA ACTTTGTACC TTACATGCCC 3480

CAATTTCAAA CCTGTTCCAC GCACAGTCAC AAGATAATGG AGAATAAGAT GTGTGACTTA 3540

ACTGTGTAAT CTCATCCAAG AAGCCTCAAG GTTCCATTCC AGTAGAGCCT GTCATGTATA 3600

ATGTGTTCTT TTATTGTTGT GGATGTGGGA GACAAGTGTC AGAATCTAGT GTGAAAATGA 3660

TTGTTTCCAA ACTAAGTGTG TCTATTTTCT CTCAGTAATA CAATGAAACA TATGAGGAAG 3720

CCCTCATTAA TCTAGTAATG TAGATGGACT CTTACTGAAT ATATTCCCAA GATACTTGGG 3780

GAAGTCTCCC TAATTCTAGC TAAAAATAAA CCCAGGAATA GAACTACTAA ACACTGAATC 3840

TGGAAAAAAA AAAAAAAAAA AG 3862

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1974 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

AAGTCTCCAG GGCAGAGAGG GAGTCAACTC ATTGGCGCTT GAGTCGGCAA AGAAATCAAG 60

ATGGCCAAAG TTCCTGACTT GTTTGAAGAC CTAAAGAACT GTTACAGTGA AAACGAAGAC 120

TACAGTTCTG CCATTGACCA TCTCTCTCTG AATCAGAAAT CCTTCTATGA TGCAAGCTAT 180

GGCTCACTTC ATGAGACTTG CACAGATCAG TTTGTATCTC TGAGAACCTC TGAAACGTCA 240

AAGATGTCCA ACTTCACCTT CAAGGAGAGC CGGGTGACAG TATCAGCAAC GTCAAGCAAC 300

GGGAAGATTC TGAAGAAGAG ACGGCTGAGT TTCAGTGAGA CCTTCACTGA AGATGACCTG 360

CAGTCCATAA CCCATGATCT GGAAGAGACC ATCCAACCCA GATCAGCACC TTACACCTAC 420

CAGAGTGATT TGAGATACAA ACTGATGAAG CTCGTCAGGC AGAAGTTTGT CATGAATGAT 480

TCCCTCAACC AAACTATATA TCAGGATGTG GACAAACACT ATCTCAGCAC CACTTGGTTA 540

AATGACCTGC AACAGGAAGT AAAATTTGAC ATGTATGCCT ACTCGTCGGG AGGAGACGAC 600

TCTAAATATC CTGTTACTCT AAAAATCTCA GATTCACAAC TGTTCGTGAG CGCTCAAGGA 660

GAAGACCAGC CCGTGTTGCT GAAGGAGTTG CCAGAAACAC CAAAACTCAT CACAGGTAGT 720

GAGACCGACC TCATTTTCTT CTGGAAAAGT ATCAACTCTA AGAACTACTT CACATCAGCT 780

GCTTATCCAG AGCTGTTTAT TGCCACCAAA GAACAAAGTC GGGTGCACCT GGCACGGGGA 840

CTGCCCTCTA TGACAGACTT CCAGATATCA TAAAAGCAGC CTTATTTCGG GAGTCTATTC 900

ACTTGGGAAG TGCTGACAGT CTGTATGTAC CATGTACAGG AACCTTCCTC ACCCTGAGTC 960

ACTTGCACAG CATGTGCTGA GTCTCTGTAA TTCTAAATGA ATGTTTACCC TCTTTGTAAG 1020

AGAAGAGCAA ACCCTAGTGG AGCCACCCCG ACATATGATA CTATCTGTTA TTTTAAAGAG 1080

TACCCTATAG TTTGCTCAGT ACTAATCATT TTAATTACTA TTCTGCATGG CATTCTTAGG 1140

AGGATCAAAA AGACTCTACA CATATTACAG ATGGGTTAAC AAAGGGATAA AACAACTGAA 1200

AAGCACACTC AATGCATTTG GAATATAAAT TCACAGACCA ATCTCACTGT GCACCTTCGG 1260

CTTCAAAATG CCAGTTGAGT AGGATAAAGG TATAAGAACT TAATGCTGTC ATTTTCAAAA 1320

GGAAGGGGAC AATAGCTACA TCTTTCCTAC CTCAGTGGGT TTTACTCCAG TGAGATCATT 1380

TGGATGAAAT CCTCCTGTAA CAGACCTCAA GAAGGAGACA GACTGTTGAA TGTTATTTTT 1440

AAGTTATTTT ATATATGTAT TTATAAATAT ATTTATGATA ATTATATTAT TTATGGAACA 1500

TCCTTAAATC CTCTGAGCTT GACAGGCATC CTCACAGCAG GATTTTCTAG GTGGTCAGTT 1560

AGATATAGTT TCCTCTAGAG CACCATGCTA CAGACTTTAC ACTTTTTCCA CAGCCACGAA 1620

GCTCTCTGTA CATTCCTGTA CTTGGGAGCC CTTTCATCAT GATCTTAATC TGTACTGTTT 1680

ACTTTGTTCA TCTAAAATGA TAATTGAGTC AGTCTTTTTC CCTCCCATCC TTAAAGCTGT 1740

CTGGGTATTC TTACATCATT CAGTCTCACC TGTAACTAAC ACCAACCATC TAAAGATGGA 1800

AAGAGCTTAA CTGTGACAAC CACATCACTG TTACCTGAAG TTTCTTTTCT AGAATGTAAT 1860

CAGTGTTTCC CCTGGATTCC AATTTTTTTT TCAAACCACA GTATCATGTA ACTATCAACA 1920

ATAACAATCA ACTCATTATT ATTAATCATA ATTAAATAAA ACAAGTTTGA GCTG 1974

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1339 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

TGCAGGGTTC GAGGCCTAAT AGGCTCATCT GGGATCCTCT CCAGCCAAGC TTCCTTGTGC 60

AAGTGTCTGA AGCAGCTATG GCAACTGTTC CTGAACTCAA CTGTGAAATG CCACCTTTTG 120

ACAGTGATGA GAATGACCTG TTCTTTGAAG TTGACGGACC CCAAAAGATG AAGGGCTGCT 180

TCCAAACCTT TGACCTGGGC TGTCCAGATG AGAGCATCCA GCTTCAAATC TCACAGCAGC 240

ACATCAACAA GAGCTTCAGG CAGGCAGTAT CACTCATTGT GGCTGTGGAG AAGCTGTGGC 300

AGCTACCTGT GTCTTTCCCG TGGACCTTCC AGGATGAGGA CATGAGCACC TTCTTTTCCT 360

TCATCTTTGA AGAAGAGCCC ATCCTCTGTG ACTCATGGGA TGATGATGAT AACCTGCTGG 420

TGTGTGACGT TCCCATTAGA CAGCTGCACT ACAGGCTCCG AGATGAACAA CAAAAAAGCC 480

TCGTGCTGTC GGACCCATAT GAGCTGAAAG CTCTCCACCT CAATGGACAG AATATCAACC 540

AACAAGTGAT ATTCTCCATG AGCTTTGTAC AAGGAGAACC AAGCAACGAC AAAATACCTG 600

TGGCCTTGGG CCTCAAAGGA AAGAATCTAT ACCTGTCCTG TGTAATGAAA GACGGCACAC 660

CCACCCTGCA GCTGGAGAGT GTGGATCCCA AGCAATACCC AAAGAAGAAG ATGGAAAAGC 720

GGTTTGTCTT CAACAAGATA GAAGTCAAGA GCAAAGTGGA GTTTGAGTCT GCAGAGTTCC 780

CCAACTGGTA CATCAGCACC TCACAAGCAG AGCACAAGCC TGTCTTCCTG GGAAACAACA 840

GTGGTCAGGA CATAATTGAC TTCACCATGG AATCTGTGTC TTCCTAAAGT ATGGGCTGGA 900

CTGTTTCTAA TGCCTTCCCC AGGGCATGTG AAGGAGCTCC CTTGTCATGA ATGAGCAGAC 960

AGCTCAATCT CTAGGACACT CCTTAGTCCT CGGCCAAGAC AGGTCGCTCA GGGTCACAAG 1020

AAACCATGGC ACATTCTGTT CAAAGAGAGC CTGTGTTTCC TCCTTGCCTC TGATGGGCAA 1080

CCACTTACCT ATTTATTTAT GTATTTATTG ATTGGTTGAT CTATTTAAGT TGATTCAAGG 1140

GGACATTAGG CAGCACTCTC TAGAACAGAA CCTAGCTGTC AACGTGTGGG GGATGAATTG 1200

GTCATAGCCT TGCACTTGAG GTCTTTCATT GAAGCTGAGA ATAAATAGGT TCCTATAATA 1260

TGGATGAGAA TTTTTATGAA TGAAGCATTA GCACATTGCT TTGATGAGTA TGAAATAAAT 1320

TTCATTAAAC AAACAAACA 1339

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1629 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

GCTGAGGGAC TAGCCAGGAG GGAGAACAGA AACTCCAGAA CATCCTGGAA ATAGCTCCCA 60

GAAAAGCAAG CAGCCAACCA GGCAGGTTCT GTCCCTTTCA CTCACTGGCC CAAGGCGCCA 120

CATCTCCCTC CAGAAAAGAC ACCATGAGCA CAGAAAGCAT GATCCGCGAC GTGGAACTGG 180

CAGAAGAGGC ACTCCCCCAA AAGATGGGGG GCTTCCAGAA CTCCAGGCGG TGCCTATGTC 240

TCAGCCTCTT CTCATTCCTG CTTGTGGCAG GGGCCACCAC GCTCTTCTGT CTACTGAACT 300

TCGGGGTGAT CGGTCCCCAA AGGGATGAGA AGTTCCCAAA TGGCCTCCCT CTCATCAGTT 360

CTATGGCCCA GACCCTCACA CTCAGATCAT CTTCTCAAAA TTCGAGTGAC AAGCCTGTAG 420

CCCACGTCGT AGCAAACCAC CAAGTGGAGG AGCAGCTGGA GTGGCTGAGC CAGCGCGCCA 480

ACGCCCTCCT GGCCAACGGC ATGGATCTCA AAGACAACCA ACTAGTGGTG CCAGCCGATG 540

GGTTGTACCT TGTCTACTCC CAGGTTCTCT TCAAGGGACA AGGCTGCCCC GACTACGTGC 600

TCCTCACCCA CACCGTCAGC CGATTTGCTA TCTCATACCA GGAGAAAGTC AACCTCCTCT 660

CTGCCGTCAA GAGCCCCTGC CCCAAGGACA CCCCTGAGGG GGCTGAGCTC AAACCCTGGT 720

ATGAGCCCAT ATACCTGGGA GGAGTCTTCC AGCTGGAGAA GGGGGACCAA CTCAGCGCTG 780

AGGTCAATCT GCCCAAGTAC TTAGACTTTG CGGAGTCCGG GCAGGTCTAC TTTGGAGTCA 840

TTGCTCTGTG AAGGGAATGG GTGTTCATCC ATTCTCTACC CAGCCCCCAC TCTGACCCCT 900

TTACTCTGAC CCCTTTATTG TCTACTCCTC AGAGCCCCCA GTCTGTGTCC TTCTAACTTA 960

GAAAGGGGAT TATGGCTCAG AGTCCAACTC TGTGCTCAGA GCTTTCAACA ACTACTCAGA 1020

AACACAAGAT GCTGGGACAG TGACCTGGAC TGTGGGCCTC TCATGCACCA CCACCCACGG 1080

AATCGAGAAA GAGCTATCAA TCTGGAATTC ACTGGAGCCT CGAATGTCCA TTCCTGAGTT 1140

CTGCAAAGGG AGAGTGGTCA GGTTGCCTCT GTCTCAGAAT GAGGCTGGAT AAGATCTCAG 1200

GCCTTCCTAC CTTCAGACCT TTCCAGACTC TTCCCTGAGG TGCAATGCAC AGCCTTCCTC 1260

ACAGAGCCAG CCCCCCTCTA TTTATATTTG CACTTATTAT TTATTATTTA TTTATTATTT 1320

ATTTATTTGC TTATGAATGT ATTTATTTGG AAGGCCGGGG TGTCCTGGAG GACCCAGTGT 1380

GGGAAGCTGT CTTCAGACAG ACATGTTTTC TGTGAAAACG GAGCTGAGCT GTCCCCACCT 1440

GGCCTCTCTA CCTTGTTGCC TCCTCTTTTG CTTATGTTTA AAACAAAATA TTTATCTAAC 1500

CCAATTGTCT TAATAACGCT GATTTGGTGA CCAGGCTGTC GCTACATCAC TGAACCTCTG 1560

CTCCCCACGG GAGCCGTGAC TGTAATTGCC CTACGGGTCA TTGAGAGAAA TAAAGATCGC 1620

TTGGAAAAG 1629

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 4110 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

GAGACTCTGG CCCCACGGGA CACAGTGTCA CTGGTTTGAA ACTTCTCAGC CACCTTGGTG 60

AAGGGACTGA GCTGTTAGAG ACACTTCTGA GGCTCCTCAC GCTTGGGTCT TGTTCACTCC 120

ACGGAGTAGC CTAGTCAACT GCAAGAGAAC GGAGAACGTT GGATTTGGAG CAGAAGTGCA 180

AAGTCTCAGA CATGGCTTGC CCCTGGAAGT TTCTCTTCAA AGTCAAATCC TACCAAAGTG 240

ACCTGAAAGA GGAAAAGGAC ATTAACAACA ACGTGAAGAA AACCCCTTGT GCTGTTCTCA 300

GCCCAACAAT ACAAGATGAC CCTAAGAGTC ACCAAAATGG CTCCCCGCAG CTCCTCACTG 360

GGACAGCACA GAATGTTCCA GAATCCCTGG ACAAGCTGCA TGTGACATCG ACCCGTCCAC 420

AGTATGTGAG GATCAAAAAC TGGGGCAGTG GAGAGATTTT GCATGACACT CTTCACCACA 480

AGGCCACATC GGATTTCACT TGCAAGTCCA AGTCTTGCTT GGGGTCCATC ATGAACCCCA 540

AGAGTTTGAC CAGAGGACCC AGAGACAAGC CTACCCCTCT GGAGGAGCTC CTGCCTCATG 600

CCATTGAGTT CATCAACCAG TATTATGGCT CCTTTAAAGA GGCAAAAATA GAGGAACATC 660

TGGCCAGGCT GGAAGCTGTA ACAAAGGAAA TAGAAACAAC AGGAACCTAC CAGCTCACTC 720

TGGATGAGCT CATCTTTGCC ACCAAGATGG CCTGGAGGAA TGTCCCTCGC TGCATCGGCA 780

GGATCCAGTG GTCCAACCTG CAGGTCTTTG ACGCTCGGAA CTGTAGCACA GCACAGGAAA 840

TGTTTCAGCA CATCTGCAGA CACATACTTT ATGCCACCAA CAATGGCAAC ATCAGGTCGG 900

CCATCACTGT GTTCCCCCAG CGGAGTGACG GCAAACATGA CTTCAGGCTC TGGAATTCAC 960

AGCTCATCCG GTACGCTGGC TACCAGATGC CCGATGGCAC CATCAGAGGG GATGCTGCCA 1020

CCTTGGAGTT CACCCAGTTG TGCATCGACC TAGGCTGGAA GCCCCGCTAT GGCCGCTTTG 1080

ATGTGCTGCC TCTGGTCTTG CAAGCTGATG GTCAAGATCC AGAGGTCTTT GAAATCCCTC 1140

CTGATCTTGT GTTGGAGGTG ACCATGGAGC ATCCCAAGTA CGAGTGGTTC CAGGAGCTCG 1200

GGTTGAAGTG GTATGCACTG CCTGCCGTGG CCAACATGCT ACTGGAGGTG GGTGGCCTCG 1260

AATTCCCAGC CTGCCCCTTC AATGGTTGGT ACATGGGCAC CGAGATTGGA GTTCGAGACT 1320

TCTGTGACAC ACAGCGCTAC AACATCCTGG AGGAAGTGGG CCGAAGGATG GGCCTGGAGA 1380

CCCACACACT GGCCTCCCTC TGGAAAGACC GGGCTGTCAC GGAGATCAAT GTGGCTGTGC 1440

TCCATAGTTT CCAGAAGCAG AATGTGACCA TCATGGACCA CCACACAGCC TCAGAGTCCT 1500

TCATGAAGCA CATGCAGAAT GAGTACCGGG CCCGTGGAGG CTGCCCGGCA GACTGGATTT 1560

GGCTGGTCCC TCCAGTGTCT GGGAGCATCA CCCCTGTGTT CCACCAGGAG ATGTTGAACT 1620

ATGTCCTATC TCCATTCTAC TACTACCAGA TCGAGCCCTG GAAGACCCAC ATCTGGCAGA 1680

ATGAGAAGCT GAGGCCCAGG AGGAGAGAGA TCCGATTTAG AGTCTTGGTG AAAGTGGTGT 1740

TCTTTGCTTC CATGCTAATG CGAAAGGTCA TGGCTTCACG GGTCAGAGCC ACAGTCCTCT 1800

TTGCTACTGA GACAGGGAAG TCTGAAGCAC TAGCCAGGGA CCTGGCCACC TTGTTCAGCT 1860

ACGCCTTCAA CACCAAGGTT GTCTGCATGG ACCAGTATAA GGCAAGCACC TTGGAAGAGG 1920

AGCAACTACT GCTGGTGGTG ACAAGCACAT TTGGGAATGG AGACTGTCCC AGCAATGGGC 1980

AGACTCTGAA GAAATCTCTG TTCATGCTTA GAGAACTCAA CCACACCTTC AGGTATGCTG 2040

TGTTTGGCCT TGGCTCCAGC ATGTACCCTC AGTTCTGCGC CTTTGCTCAT GACATCGACC 2100

AGAAGCTGTC CCACCTGGGA GCCTCTCAGC TTGCCCCAAC AGGAGAAGGG GACGAACTCA 2160

GTGGGCAGGA GGATGCCTTC CGCAGCTGGG CTGTACAAAC CTTCCGGGCA GCCTGTGAGA 2220

CCTTTGATGT CCGAAGCAAA CATCACATTC AGATCCCGAA ACGCTTCACT TCCAATGCAA 2280

CATGGGAGCC ACAGCAATAT AGGCTCATCC AGAGCCCGGA GCCTTTAGAC CTCAACAGAG 2340

CCCTCAGCAG CATCCATGCA AAGAACGTGT TTACCATGAG GCTGAAATCC CAGCAGAATC 2400

TGCAGAGTGA AAAGTCCAGC CGCACCACCC TCCTCGTTCA GCTCACCTTC GAGGGCAGCC 2460

GAGGGCCCAG CTACCTGCCT GGGGAACACC TGGGGATCTT CCCAGGCAAC CAGACCGCCC 2520

TGGTGCAGGG AATCTTGGAG CGAGTTGTGG ATTGTCCTAC ACCACACCAA ACTGTGTGCC 2580

TGGAGGTTCT GGATGAGAGC GGCAGCTACT GGGTCAAAGA CAAGAGGCTG CCCCCCTGCT 2640

CACTCAGCCA AGCCCTCACC TACTTCCTGG ACATTACGAC CCCTCCCACC CAGCTGCAGC 2700

TCCACAAGCT GGCTCGCTTT GGCACGGACG AGACGGATAG GCAGAGATTG GAGGCCTTGT 2760

GTCAGCCCTC AGAGTACAAT GACTGGAAGT TCAGCAACAA CCCCACGTTC CTGGAGGTGC 2820

TTGAAGAGTT CCCTTCCTTG CATGTGCCCG CTGCCTTCCT GCTGTCGCAG CTCCCTATCT 2880

TGAAGCCCCG CTACTACTCC ATCAGCTCCT CCCAGGACCA CACCCCCTCG GAGGTTCACC 2940

TCACTGTGGC CGTGGTCACC TACCGCACCC GAGATGGTCA GGGTCCCCTG CACCATGGTG 3000

TCTGCAGCAC TTGGATCAGG AACCTGAAGC CCCAGGACCC AGTGCCCTGC TTTGTGCGAA 3060

GTGTCAGTGG CTTCCAGCTC CCTGAGGACC CCTCCCAGCC TTGCATCCTC ATTGGGCCTG 3120

GTACGGGCAT TGCTCCCTTC CGAAGTTTCT GGCAGCAGCG GCTCCATGAC TCCCAGCACA 3180

AAGGGCTCAA AGGAGGCCGC ATGAGCTTGG TGTTTGGGTG CCGGCACCCG GAGGAGGACC 3240

ACCTCTATCA GGAAGAAATG CAGGAGATGG TCCGCAAGAG AGTGCTGTTC CAGGTGCACA 3300

CAGGCTACTC CCGGCTGCCC GGCAAACCCA AGGTCTACGT TCAGGACATC CTGCAAAAGC 3360

AGCTGGCCAA TGAGGTACTC AGCGTTCTCC ACGGGGAGCA GGGCCACCTC TACATTTGCG 3420

GAGATGTGCG CATGGCTCGG GATGTGGCTA CCACATTGAA GAAGCTGGTG GCCACCAAGC 3480

TGAACTTGAG CGAGGAGCAG GTGGAAGACT ATTTCTTCCA GCTCAAGAGC CAGAAACGTT 3540

ATCATGAAGA TATCTTCGGT GCAGTCTTTT CCTATGGGGC AAAAAAGGGC AGCGCCTTGG 3600

AGGAGCCCAA AGCCACGAGG CTCTGACAGC CCAGAGTTCC AGCTTCTGGC ACTGAGTAAA 3660

GATAATGGTG AGGGGCTTGG GGAGACAGCG AAATGCAATC CCCCCCAAGC CCCTCATGTC 3720

ATTCCCCCCT CCTCCACCCT ACCAAGTAGT ATTGTATTAT TGTGGACTAC TAAATCTCTC 3780

TCCTCTCCTC CCTCCCCTCT CTCCCTTTCC TCCCTTCTTC TCCACTCCCC AGCTCCCTCC 3840

TTCTCCTTCT CCTCCTTTGC CTCTCACTCT TCCTTGGAGC TGAGAGCAGA GAAAAACTCA 3900

ACCTCCTGAC TGAAGCACTT TGGGTGACCA CCAGGAGGCA CCATGCCGCC GCTCTAATAC 3960

TTAGCTGCAC TATGTACAGA TATTTATACT TCATATTTAA GAAAACAGAT ACTTTTGTCT 4020

ACTCCCAATG ATGGCTTGGG CCTTTCCTGT ATAATTCCTT GATGAAAAAT ATTTATATAA 4080

AATACATTTT ATTTTAATCA AAAAAAAAAA 4110

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 465 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Rattus norvegicus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

GGCATCATGG CTGCCCTTCG GCCTCTGGTG AAGCCCAAGA TCGTCAAAAA GAGGACCAAG 60

AAGTTCATCA GGCACCAGTC GGACCGATAT GTGAAAATTA AGCGAAACTG GCGGAAACCC 120

AGAGGCATCG ACAACAGGGT GCGGAGAAGA TTCAAGGGCC AGATCCTGAT GCCCAACATT 180

GGTTACGGGA GTAACAAGAA AACCAAGCAC ATGCTGCCTA GCGGCTTCCG GAAGTTTCTG 240

GTCCACAATG TCAAGGAGCT GGAAGTGCTG CTGATGTGCA ACAAATCTTA CTGTGCTGAG 300

ATTGCTCACA ATGTGTCCTC TAAGAACCGA AAAGCCATCG TAGAAAGAGC AGCACAGCTG 360

GCCATCAGAG TCACCAATCC CAACGCCAGG CTACGCAGCG AAGAGAATGA ATAGATGGCT 420

TGTGTGCCTG TTTTGTGTTC AAATAAAACC ACAAAAACTG CCAAA 465

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

GCTATCGACA AGCAGCAGAA T 21

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

TGAACACAAC AACATAAAGC CC 22

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

TGTTATATCT GGTTATTATT GAATGG 26

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 27 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:
(A) ORGANISM: Mus musculus

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

CATTAAATGA TTTATTATCA GAATTGC 27